

1. Simplify the expression below and choose the interval the simplification is contained within.

$$19 - 18^2 + 6 \div 9 * 11 \div 3$$

- A. $[-306.98, -303.98]$
 - B. $[343.44, 350.44]$
 - C. $[-303.56, -299.56]$
 - D. $[338.02, 345.02]$
 - E. None of the above
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2. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{0}{11\pi} + \sqrt{9}i$$

- A. Rational
 - B. Nonreal Complex
 - C. Irrational
 - D. Not a Complex Number
 - E. Pure Imaginary
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3. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-54 + 88i}{2 + 4i}$$

- A. $a \in [243, 246]$ and $b \in [19, 20]$
- B. $a \in [-24, -22.5]$ and $b \in [-2.5, -1.5]$
- C. $a \in [-28, -26.5]$ and $b \in [21, 23]$
- D. $a \in [10.5, 12.5]$ and $b \in [390.5, 393]$

E. $a \in [10.5, 12.5]$ and $b \in [19, 20]$

4. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{4225}{25}}$$

- A. Whole
 - B. Not a Real number
 - C. Rational
 - D. Integer
 - E. Irrational
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5. Simplify the expression below and choose the interval the simplification is contained within.

$$11 - 12^2 + 5 \div 16 * 2 \div 3$$

- A. $[155.1, 155.41]$
 - B. $[-132.91, -132.73]$
 - C. $[-133.09, -132.89]$
 - D. $[154.88, 155.12]$
 - E. None of the above
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6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(2 - 10i)(5 + 8i)$$

- A. $a \in [-70, -65]$ and $b \in [61, 72]$
- B. $a \in [87, 93]$ and $b \in [30, 38]$
- C. $a \in [87, 93]$ and $b \in [-37, -31]$

D. $a \in [-70, -65]$ and $b \in [-69, -63]$

E. $a \in [7, 14]$ and $b \in [-82, -77]$

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-8 + 4i)(5 + 7i)$$

A. $a \in [-69, -62]$ and $b \in [33, 39]$

B. $a \in [-16, -4]$ and $b \in [-77, -75]$

C. $a \in [-41, -38]$ and $b \in [25, 29]$

D. $a \in [-16, -4]$ and $b \in [74, 83]$

E. $a \in [-69, -62]$ and $b \in [-38, -35]$

8. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{140625}{625}}$$

A. Integer

B. Not a Real number

C. Rational

D. Whole

E. Irrational

9. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{4}{2} + 64i^2$$

A. Nonreal Complex

B. Irrational

- C. Pure Imaginary
 - D. Not a Complex Number
 - E. Rational
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10. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 + 44i}{5 + 2i}$$

- A. $a \in [14.5, 16]$ and $b \in [75, 77]$
 - B. $a \in [8, 10]$ and $b \in [12, 14]$
 - C. $a \in [14, 15]$ and $b \in [20.5, 22.5]$
 - D. $a \in [14.5, 16]$ and $b \in [1.5, 3]$
 - E. $a \in [447.5, 449]$ and $b \in [1.5, 3]$
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11. Simplify the expression below and choose the interval the simplification is contained within.

$$4 - 2^2 + 1 \div 20 * 19 \div 5$$

- A. $[0.18, 0.27]$
 - B. $[-0.03, 0.13]$
 - C. $[7.96, 8.06]$
 - D. $[8.17, 8.23]$
 - E. None of the above
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12. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-2178}{11}}i + \sqrt{165}i$$

- A. Nonreal Complex
 - B. Pure Imaginary
 - C. Not a Complex Number
 - D. Rational
 - E. Irrational
-

13. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{63 + 88i}{4 - 3i}$$

- A. $a \in [15.5, 18.5]$ and $b \in [-29.5, -28.5]$
 - B. $a \in [-1, 0]$ and $b \in [20.5, 23]$
 - C. $a \in [-13, -10]$ and $b \in [20.5, 23]$
 - D. $a \in [19.5, 21.5]$ and $b \in [6, 7]$
 - E. $a \in [-1, 0]$ and $b \in [540.5, 542.5]$
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14. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{53361}{441}}$$

- A. Not a Real number
 - B. Whole
 - C. Integer
 - D. Rational
 - E. Irrational
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15. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 19^2 + 13 \div 4 * 15 \div 1$$

- A. $[-305.25, -301.25]$
 - B. $[368.22, 380.22]$
 - C. $[416.75, 420.75]$
 - D. $[-360.78, -350.78]$
 - E. None of the above
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16. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(2 - 10i)(-8 - 3i)$$

- A. $a \in [-18, -11]$ and $b \in [27, 31]$
 - B. $a \in [11, 15]$ and $b \in [82, 90]$
 - C. $a \in [-50, -38]$ and $b \in [-74, -69]$
 - D. $a \in [11, 15]$ and $b \in [-88, -85]$
 - E. $a \in [-50, -38]$ and $b \in [73, 76]$
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17. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-8 - 9i)(10 - 4i)$$

- A. $a \in [-118, -110]$ and $b \in [-60, -52]$
- B. $a \in [-46, -43]$ and $b \in [-123, -115]$
- C. $a \in [-118, -110]$ and $b \in [52, 60]$
- D. $a \in [-46, -43]$ and $b \in [115, 125]$
- E. $a \in [-81, -74]$ and $b \in [34, 39]$

18. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{39204}{484}}$$

- A. Integer
 - B. Not a Real number
 - C. Whole
 - D. Irrational
 - E. Rational
-

19. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-910}{5}}i + \sqrt{156}i$$

- A. Irrational
 - B. Not a Complex Number
 - C. Pure Imaginary
 - D. Nonreal Complex
 - E. Rational
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20. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{72 - 77i}{-6 + 2i}$$

- A. $a \in [-15, -14]$ and $b \in [7, 9.5]$
- B. $a \in [-15, -14]$ and $b \in [316.5, 319]$
- C. $a \in [-12.5, -11.5]$ and $b \in [-39, -38]$

D. $a \in [-8, -6]$ and $b \in [14.5, 16.5]$

E. $a \in [-587, -585.5]$ and $b \in [7, 9.5]$

21. Simplify the expression below and choose the interval the simplification is contained within.

$$9 - 1 \div 10 * 11 - (20 * 4)$$

A. $[85.3, 89.7]$

B. $[-72.5, -71.4]$

C. $[-71.1, -69.5]$

D. $[-49.3, -47.3]$

E. None of the above

22. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{8}{0} + \sqrt{80}i$$

A. Nonreal Complex

B. Not a Complex Number

C. Irrational

D. Rational

E. Pure Imaginary

23. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 - 11i}{8 + 4i}$$

A. $a \in [-4.5, -3.5]$ and $b \in [-3.5, -2.9]$

- B. $a \in [-7, -5.5]$ and $b \in [-3.2, -2.7]$
 - C. $a \in [-405.5, -403.5]$ and $b \in [0.9, 1.6]$
 - D. $a \in [-5.5, -4]$ and $b \in [91.45, 92.9]$
 - E. $a \in [-5.5, -4]$ and $b \in [0.9, 1.6]$
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24. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{22}{0}}$$

- A. Integer
 - B. Irrational
 - C. Rational
 - D. Not a Real number
 - E. Whole
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25. Simplify the expression below and choose the interval the simplification is contained within.

$$1 - 3^2 + 19 \div 15 * 17 \div 16$$

- A. $[9.55, 10.63]$
 - B. $[10.15, 13.6]$
 - C. $[-7.07, -6.63]$
 - D. $[-9.06, -7.76]$
 - E. None of the above
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26. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(6 - 5i)(-7 - 10i)$$

- A. $a \in [-98, -89]$ and $b \in [-25, -21]$
 - B. $a \in [-44, -40]$ and $b \in [43, 53]$
 - C. $a \in [-98, -89]$ and $b \in [23, 28]$
 - D. $a \in [7, 11]$ and $b \in [-95, -92]$
 - E. $a \in [7, 11]$ and $b \in [88, 96]$
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27. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(5 - 8i)(-4 + 2i)$$

- A. $a \in [-42, -31]$ and $b \in [-23, -21]$
 - B. $a \in [-6, -2]$ and $b \in [37, 48]$
 - C. $a \in [-42, -31]$ and $b \in [21, 25]$
 - D. $a \in [-22, -19]$ and $b \in [-21, -14]$
 - E. $a \in [-6, -2]$ and $b \in [-47, -35]$
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28. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{2574}{13}}$$

- A. Whole
 - B. Rational
 - C. Irrational
 - D. Not a Real number
 - E. Integer
-

29. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{-1430}{10}} + \sqrt{154}$$

- A. Pure Imaginary
 - B. Irrational
 - C. Not a Complex Number
 - D. Rational
 - E. Nonreal Complex
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30. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{36 + 33i}{-2 + 6i}$$

- A. $a \in [2.5, 4]$ and $b \in [-282.5, -281]$
 - B. $a \in [-19, -17.5]$ and $b \in [5, 6.5]$
 - C. $a \in [-7, -6]$ and $b \in [3, 4.5]$
 - D. $a \in [125, 127]$ and $b \in [-8, -6.5]$
 - E. $a \in [2.5, 4]$ and $b \in [-8, -6.5]$
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